CITY OF SUGAR LAND

DROUGHT CONTINGENCY PLAN

Revised September 2012

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Section 1: Introduction

Drought, catastrophic events, and other uncontrollable circumstances can severely disrupt the normal supply, production, and delivery of water to customers. As a naturally occurring part of the Texas climate and water system operations, these situations necessitate a thorough assessment of water resources, production and delivery. Drought planning must consider both water supplies and managing risk related to infrastructure, production, and delivery capabilities during periods of water shortages or mechanical failure.

The City will convert part of its water supply from groundwater to surface water due to a regulatory mandate from the Fort Bend Subsidence District (FBSD). The City's Groundwater Reduction Plan (GRP) is the roadmap to meet the FBSD regulatory requirement. The major component of the GRP is the City's Surface Water Treatment Plant (SWTP) which will supply 9 million gallons a day, enough to meet the initial 30% reduction in groundwater supplies. Since the SWTP is a totally redundant water supply, it artificially inflates system capacity because groundwater supplies cannot be utilized in order to remain in compliance with FBSD regulations. Groundwater wells will be used to meet peak water demand, but average water demands will be met primarily by surface water supplies. This reliance on the SWTP to meet conversion requirements necessitates drought planning consider both water supplies and regulatory mandates. During a situation where the SWTP must be offline for more than 30 days per year, a reduction in daily demand to account for this supply loss will be necessary to meet conversion requirements or the GRP/City could use banked conversion credits to meet our regulatory requirements. The City will implement this Plan's judicious water management strategies that during emergency situations will assure adequate supply for essential uses such as water required for the protection of public health, safety, welfare and protect the integrity of the City's water facilities.

Section 2: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply, and to protect and preserve public health, welfare, and safety and to minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Sugar Land hereby adopts the following regulations and restrictions on the delivery and consumption of water.

Water uses regulated or prohibited under this Drought Contingency Plan are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply conditions are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined as adopted in the City's code of ordinances.

Section 3: Production and Delivery

Peak Demand

During the summer season, 30% to 40% of water demand comes from seasonal demand, directly attributed to landscape irrigation, and accounts for 50% or more of peak daily water use depending on temperature and rainfall. During a drought, seasonal use increases by an additional 20%. The recent drought year of 2011 was the worst one year drought Texas has ever recorded. In 2011, the City of Sugar Land's summer monthly average production was 48% greater than the base winter average production. Overbuilding water supply infrastructure to meet infrequent high peak demands is costly and fiscally imprudent, however these high peak demands must be considered when planning for future water facilities.

System Repairs

Sugar Land saw a 31% increase in reported water leaks from August of 2010 to August of 2011. This illustrates that dry conditions not only cause high customer demand, but increase water loss from leaks or system mechanical failure. During drought, the peak daily demand to average daily demand ratio increases and this type of peak demand pushes the system limits and can cause well failures.

Pressure Drops

The most unfavorable condition occurs when the peak daily demand causes a drop in system pressure below the City's service level of 45 psi in major trunk lines, which has been established to assure sufficient pressure to meet customer and fire flow needs. If the pressure drops below 20 psi, regulation requires a boil water notice must be delivered to all impacted customers. The potential low pressure issue created by peak demand in the summer season can be directly attributed to irrigation, leaks, equipment failure and non-essential water uses. This plan aims to effectively reduce the use of water when necessary to prevent pressure drops.

Section 4: Public Education

The City will educate the public and provide opportunity for public input thorough efficient communication methods needed to provide information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of the City of Sugar Land website, Sugar Land Today, and disseminated at various events throughout the year.

Section 5: Coordination with Regional Water Planning Groups

The service area of the City is located within the Region H Water Planning Group and the City has provided a copy of this Plan to the Region H. The City has filed a copy with the Texas Water Development Board and the TCEQ.

Section 6: Authorization

The City Manager or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon declaration by the Mayor that such implementation is necessary to protect public health, safety, and welfare. The Mayor shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section 7: Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing potable water provided by the City. The terms "person" and "customer" as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

Section 8: Criteria for initiation and termination of Emergency Response Stages

The City Manager or his/her designee may institute the response stages of this Plan if the conditions indicate that there will be insufficient water supply or delivery to protect public health and meet regulatory requirements. Water supply, demand and production capacity conditions will be measured on a

daily basis. Production capacity refers to the combined capacity of all potable groundwater and surface water production.

The City Manager or his/her designee shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified "triggers" are reached. Factors that may induce triggering of this plan include:

- Demand increases that strain production capacity
- Loss of production delivery capacity
    - Facilities such as wells or surface water treatment plant offline
    - Major infrastructure repairs impede delivery or reduce pressure
- Utilizing groundwater capacity threatens regulatory penalties from FBSD

Section 9: Definitions

For the purposes of this Plan, the following definitions shall apply:

Aesthetic water use:

- Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools.
- Use of water to fill, refill, or add to a fountain, pond, or lake for aesthetic or scenic purposes except where necessary to support aquatic life.
- Use of water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial water use: water use, which is integral to the operations of commercial and non-profit establishments and governmental entities such as City operations, retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future and/or alternative uses.

Customer: any person, company or organization using water supplied by the City.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, cooking, sanitation.

Essential water use: potable water required for the protection of public health, safety, and welfare.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, parks, and street rights-of-ways.

Non-essential water use: water uses that are neither essential nor required for the protection of public health, safety, and welfare, including:

- Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle.
- Use of water to wash-down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas.
- Use of water to wash down buildings or structures for purposes other than immediate fire protection.
- Flushing gutters or permitting water to run or accumulate in any gutter or street.
- Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).
- Use of water from fire hydrants for construction purposes or any other purposes other than firefighting or meeting regulations.
- Adding new transient construction meters.

Section 10: Year Round Water Efficiency

Year round water efficiency is a part of the City's plan to implement judicious water management strategies to ensure the integrity of the City's water facilities and prepare for potential drought. Engaging in water efficiency year-round will also allow the City to practice water conservation and be efficient in managing our water resources.

Supply Management Measures:

- Reduced flushing of water mains unless necessary to meet regulatory requirements or water quality concerns.

Voluntary Water Use:

- Residential, Commercial, and Rights-of-way customers are strongly encouraged to voluntarily limit landscape irrigation to the two designated irrigation days as established by the Irrigation Zones Schedule.
- Customers are encouraged to reduce the volume of water used for **Non-essential** and **Aesthetic** water needs.

Section 11: Triggers and Response Stages

Stage 1

Stage 1 Triggers–Severe Water Distress Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain water uses in Stage 1 of the Plan when

- Average total daily water demand equals or exceeds 65% of production capacity for three consecutive days.

Requirements for termination

Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of five consecutive days. The City shall attempt to achieve the target in reductions in water demand.

Stage 1 Response–Severe Water Distress Conditions – (65% of production capacity)

Target:

Achieve a 5% reduction in daily water demand, preferably during times of peak water use.

Supply Management Measures:

- Discontinued flushing of water mains unless necessary to meet regulatory requirements or water quality concerns.

Mandatory Water Use Restrictions:

- Customers are required to limit landscape irrigation to the two designated irrigation days as established by the Irrigation Zones Schedule in Appendix A.

Voluntary Water Use:

- Customers are encouraged but not required to reduce **Non-essential** and **Aesthetic** water uses.

Stage 2

Stage 2 Triggers–Critical Water Distress Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain water uses for Stage 2 of this Plan when the

- Average total daily water demand equals or exceeds 70% of production capacity for three consecutive days.

Requirements for termination

Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of five consecutive days. The City shall attempt to achieve the target in reductions in water demand. Upon termination of Stage 2, Stage 1 becomes operative.

Stage 2 Response–CRITICAL Water Distress Conditions – (70% of production capacity)

Target:

Achieve a 5% reduction in daily water demand, preferably during times of peak water use.

Supply Management Measures:

- Discontinued flushing of water mains unless necessary to meet regulatory requirements or water quality concerns.

Mandatory Water Use Restrictions:

- Residential customers are required to limit landscape irrigation to one of the two designated irrigation days as established by the Zone Schedule as listed in Appendix B.

Stage 3

Stage 3 Triggers–EMERGENCY Water Distress Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions for Stage 3 of this Plan when one of the following circumstances applies

- Average total daily water demand equals or exceeds 80% of production capacity for three consecutive days
- Surface Water Treatment Plant cannot provide its daily production capacity for more than 30 days
- When the City Manager determines that a water supply delivery emergency exists that threatens the City's capacity to deliver potable water

Stage 3 Response–EMERGENCY Water Distress Conditions (Total water demand equals or exceeds 80% of production capabilities for three consecutive days; the City Manager determines a water emergency exists)

Target:

Achieve a 5% reduction in daily water demand, preferably during times of peak water use.

Supply Management Measures:

- Discontinued flushing of water mains unless necessary to meet regulatory requirements or water quality concerns.

Mandatory Water Use Restrictions:

- All Residential, Commercial and Right- of -Way landscape irrigation is prohibited.
- **Non-essential** and Aesthetic water uses as defined in **Definitions** are prohibited.
- No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage or a higher-numbered stage shall be in effect.
- Curtailing of water use for non-essential businesses and uses as the City Manager deems necessary.
- In addition, the City Manager may elect to discontinue service to non-essential businesses and facilities if necessary to maintain essential uses and facilities (e.g. hospitals, fire flow, etc.). These restrictions will be delivered depending on priority of the business as specified in the adopted City's Emergency Management Plan.

Requirements for termination

Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three consecutive days. In the event that the Surface Water Treatment Plant shall go offline, Stage 3 of the Plan may be rescinded when daily water demand is sufficiently reduced to meet mandated conversion rates. Upon termination of Stage 3, Stage 2 becomes operative.

Section 12: Water Distress Notification

The City Manager's designee shall implement the following notification procedure when severe, critical or emergency conditions occur.

Notification of the Public:

The Water Utilities Department, in conjunction with the Communications Department, as directed by the City Manager and or his/her designee, shall notify the public by means of some combination of the following effective and efficient communication methods as deemed necessary by the current conditions:

- Drought status on City homepage with corresponding information
  - Irrigation schedule
  - Recommended water conservation methods
- Publication in a newspaper of general circulation and/or press release
- Direct mail to each customer
- Public service announcements,
- Signs posted in public places and HOA bulletin boards
- Take-home fliers at schools/businesses
- City Emergency Notification System

Additional Notification:

The City Manager and or his/her designee shall notify directly, or cause to be notified directly, the following individuals and entities:

- Members of the City Council
- Fire Chief
- TCEQ (required when mandatory restrictions are imposed)
- Major water users
- Critical water users, i.e., hospitals, senior care facilities, schools
- Parks / Street superintendents & public facilities managers
- Home Owners Associations

Section 13: Allocation

The City does not put forth specific triggers for a situation in which water for essential uses would be allocated. In such a condition, the City Manager or his/her designee would allocate water to essential facilities as determined by the City's existing Emergency Management Plan and other emergency planning and documentation. Briefly, the City's intent in an emergency situation is to restore water service to essential emergency facilities (hospitals, etc.), and then for essential uses, before considering allocations for uses not related to human consumption/health and safety.

Section 14: Enforcement

(a) No person shall knowingly or intentionally allow water to be used for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the water distress response stage in effect at the plan.

(b) Any person who violates this Plan is guilty of a an offense and, upon conviction shall be punished by a fine as established in the City's Code of Ordinances, as amended from time to time. Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Plan, the Director or their designee shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, as established in the City's Code of Ordinances, as amended from time to time, and any other costs incurred by the City in discontinuing service. In addition, suitable assurance must be given to the Director that the same action shall not be repeated while the Plan is in effect. Compliance with this Plan may also be sought through injunctive relief in the district court.

(c) Any person, including a person classified as a water customer of the City, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously

directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

(d) Any employee of the Code Enforcement staff, police officer, or other employee designated by the City Manager, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance.

Section 15: Variances

The City Manager or his/her designee, may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency conditions adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

(a) Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
(b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance with the City within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the City Manager or his/her designee and shall include the following:

(a) Name and address of the petitioner(s).
(b) Purpose of water use.
(c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
(d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
(e) Description of the relief requested.
(f) Period of time for which the variance is sought.
(g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.

Other Pertinent Information

(a) Variances granted by the City shall be subject to the following conditions, unless waived or modified by the Mayor or his/her designee.
(b) Variances granted shall include a timetable for compliance.
(c) Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

Formal Adoption of Plans

Pending approval

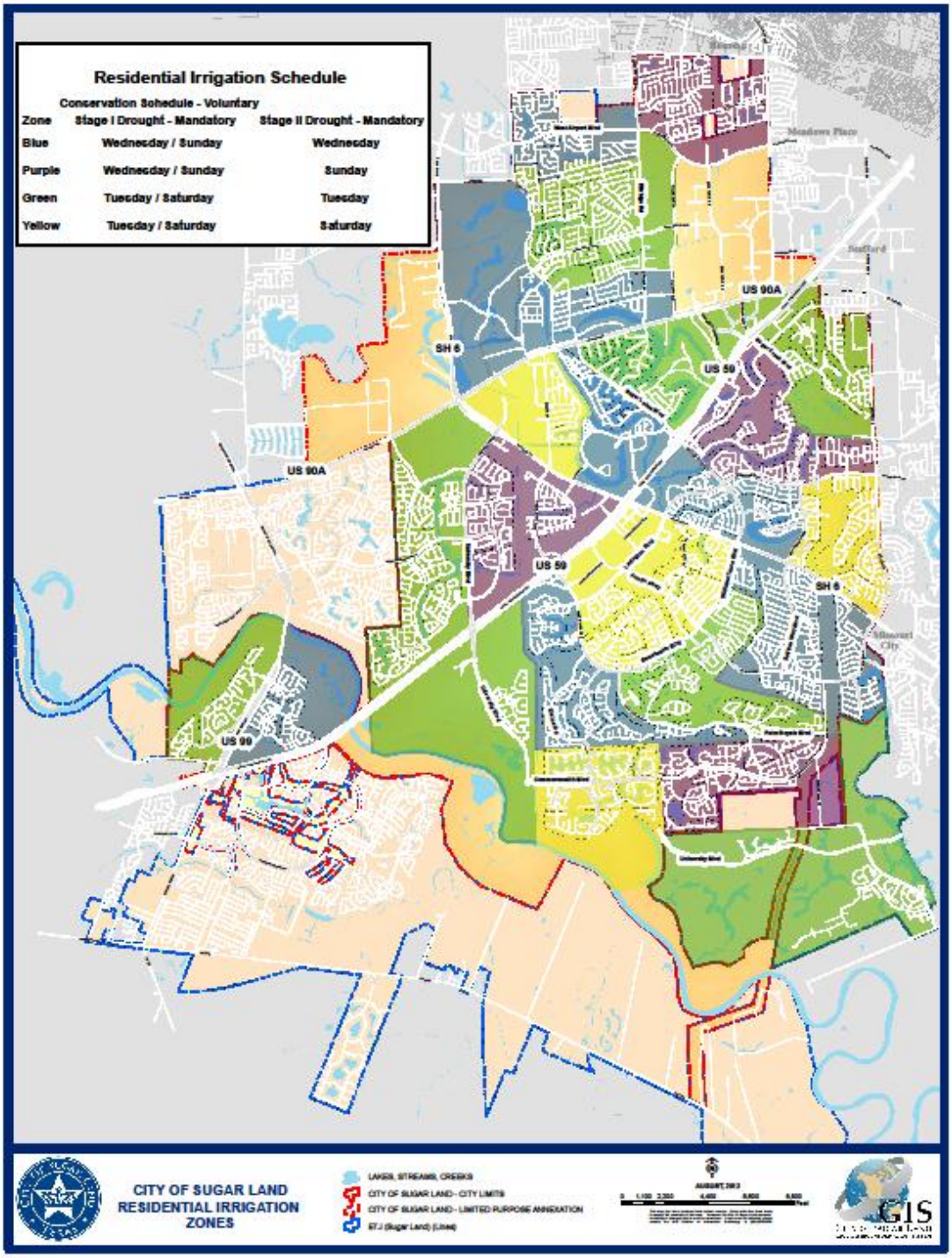
Appendices

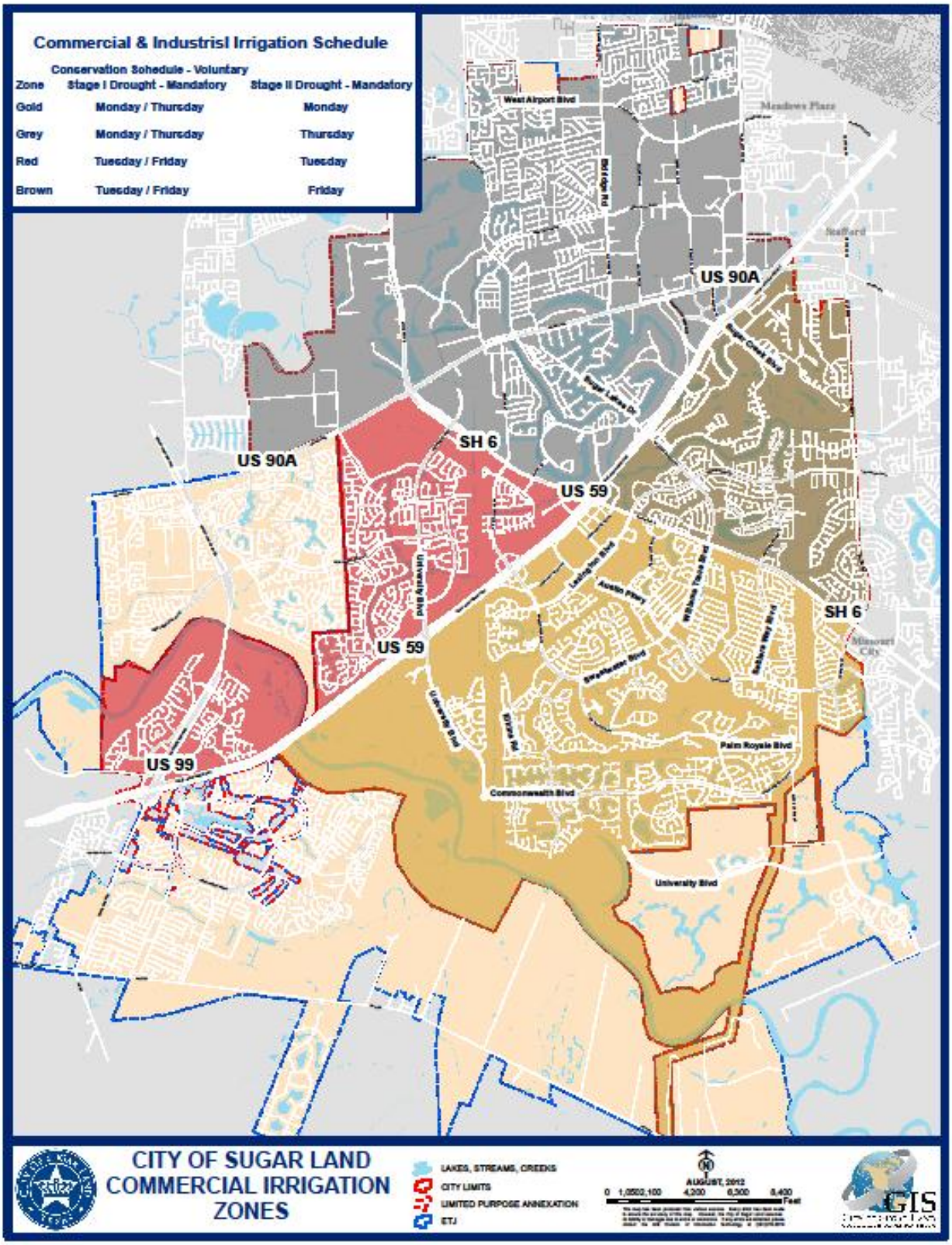
Appendix A
Drought Trigger and Response Quick Reference Chart

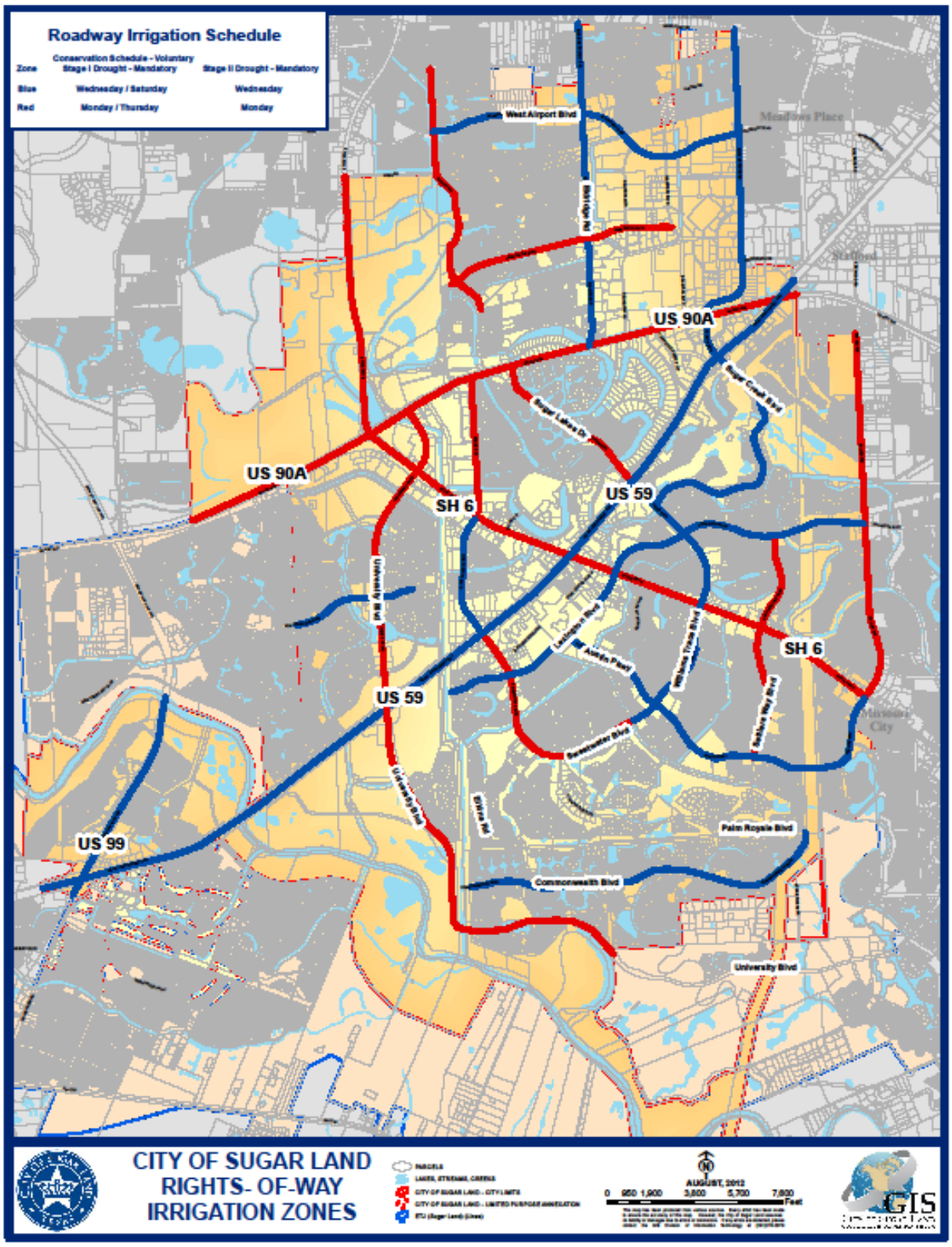
<table>
<tr><th></th><th>Year Round
Efficiency</th><th>Stage I
Severe Distress</th><th>Stage II
Critical Distress</th><th>State III
Emergency</th></tr>
<tr><td colspan="5">Trigger</td></tr>
<tr><td>Three day average demand</td><td rowspan="2">Efficient Water Management Practices</td><td>65%
production capacity</td><td>70%
production capacity</td><td>80%
production capacity</td></tr>
<tr><td>Surface Water Treatment Plant</td><td colspan="2"></td><td>offline for
> 30 days</td></tr>
<tr><td colspan="5">Irrigation</td></tr>
<tr><td>Residential</td><td rowspan="3">Voluntary
Maximum
Two Day</td><td rowspan="3">Mandatory
Maximum
Two Day</td><td rowspan="3">Mandatory
Maximum
One Day</td><td rowspan="3">Prohibited</td></tr>
<tr><td>Commercial</td></tr>
<tr><td>Right of Way Watering</td></tr>
<tr><td colspan="5">Aesthetic Water Use</td></tr>
<tr><td>filling pools, fountains, ponds, and lakes
filling reflecting pools;
filling water gardens
water use for scenic purposes</td><td>Voluntary
Reduction</td><td>Voluntary
Reduction</td><td>Prohibited</td><td>Prohibited</td></tr>
<tr><td colspan="5">Non-Essential Water Use</td></tr>
<tr><td>washing cars;
power washing;
washing sidewalks;
washing buildings
gutter flushing</td><td>Voluntary
Reduction</td><td>Voluntary
Reduction</td><td>Prohibited</td><td>Prohibited</td></tr>
<tr><td>Main Line Flushing</td><td colspan="4">Reduce unless necessary to meet regulation or water quality concerns</td></tr>
<tr><td>New Meters</td><td colspan="3"></td><td>No application for new meters</td></tr>
<tr><td>Curtailment</td><td colspan="3"></td><td>If City Manger deems necessary</td></tr>
</table>

Appendix B
Irrigation Zones Schedule

The following residential, commercial, and rights-of-way irrigation schedules have been established to be followed during Year Round Water Efficiency and all stages in this Plan.




Commercial & Industrisl Irrigation Schedule
Conservation Sohedule - Voluntary
Zone
Stage I Drought - Mandatory
Stage II Drought - Mandatory
Gold
Monday / Thursday
Monday
Grey
Monday / Thursday
Thursday
Red
Tuesday / Friday
Tuesday
Brown
Tuesday / Friday
Friday
US 90A
SH 6
US 59
US 99
West Airport Blvd
Meadows Place
Stafford
Missouri City
University Blvd
Commonwealth Blvd
Palm Royale Blvd
CITY OF SUGAR LAND
COMMERCIAL IRRIGATION
ZONES
LAKES, STREAMS, CREEKS
CITY LIMITS
LIMITED PURPOSE ANNEXATION
ETJ
AUGUST, 2012
GIS


Roadway Irrigation Schedule
Zone
Conservation Schedule - Voluntary
Stage I Drought - Mandatory
Stage II Drought - Mandatory
Blue
Wednesday / Saturday
Wednesday
Red
Monday / Thursday
Monday
West Airport Blvd
Meadows Place
Stafford
US 90A
Sugar Creek Blvd
Sugar Lakes Dr
US 90A
SH 6
US 59
Highway Blvd
Lexington Blvd
W Airtex Fwy
Williams Trace Blvd
SH 6
Missouri City
US 59
Sweetwater Blvd
Sabine Mist Blvd
Dulles Ave
Palm Royale Blvd
US 99
Commonwealth Blvd
University Blvd
CITY OF SUGAR LAND
RIGHTS- OF-WAY
IRRIGATION ZONES
PARCELS
LAKES, STREAMS, CANALS
CITY OF SUGAR LAND - CITY LIMITS
CITY OF SUGAR LAND - LIMITED PURPOSE ANNEXATION
ETJ (Sugar Land) (Lines)
AUGUST, 2012
0 950 1,900 3,800 5,700 7,600
Feet
GIS

Appendix C
City Water Service Area